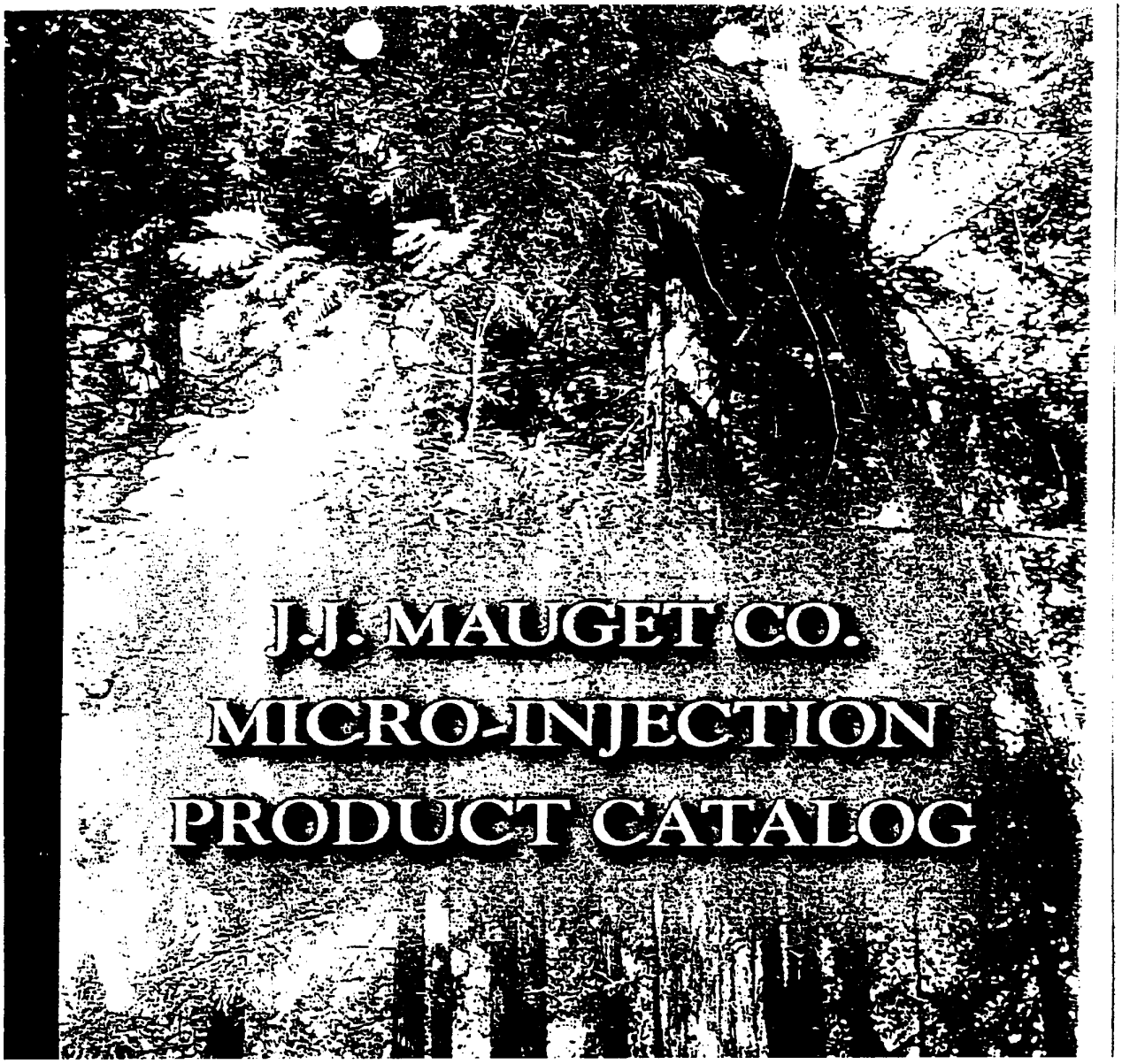

J.J. MAUGET CO.
MICRO-INJECTION
PRODUCT CATALOG

INTRODUCTION

MAUGET micro-injection products are the choice of more green industry professionals than any other method of tree injection. For more than 30 years, MAUGET products have been professionally used to assist with improving tree health while protecting the environment.

MAUGET micro-injection technology has proven to be the most efficient and effective utilization of a trees transpiration system for transporting nutrients and pesticides. MAUGET products are easy to apply and "SIMPLY EFFECTIVE".

MAUGET offers the broadest line of micro-injection products available in one system and has been referred to as "A DRUG STORE FOR TREES". MAUGET brings the most versatile of the micro-injection systems available to the Green Industry Professional. The MAUGET product line includes: **fertilizers, micro-nutrients, insecticides, fungicides, antibiotics, combination products and training/support materials.** MAUGET offers a comprehensive support system through its toll free technical support line (877-TREE HLP 877-873-3457), international network of distributors and research associates.

FERTILIZERS

MAUGET has the greatest assortment of agricultural minerals developed specifically for micro-injection treatments. Some of the unique advantages would include; root system damage, feeder roots not accessible, ground water concerns, leaching/drainage concerns, rapid availability of elements, frost damage protection and recovery, insect damage recovery. 100% of the elements are utilized by the plant resulting in a cost effective fertilization program.

The STEMIX family of fertilizers are based on chelated elements. Depending on soil conditions, the benefits of these micro-injection treatments can be evident over one to five years when compared to adjacent untreated trees.

STEMIX: 0.7-1-0.9 is an all purpose balanced fertilizer that contains a formula of agricultural minerals designed to stimulate foliar and root growth without extended damage to trees. It is particularly effective in promoting new foliar, cambial and root growth where conventional applications of fertilizers alone may not produce this effect. Stemix treatments will provide the stimulation necessary for the proper acceptance of soil applied fertilization materials.

STEMIX HI VOLUME: 0.47-0.68-0.61 is basically the same formulation as stemix only diluted from 4 ml. to 6 ml. with 2 additional mls. of water. This formulation provides improved distribution throughout the tree.

STEMIX ZINC: is based on the stemix hi vol formulation with enhanced levels of zinc, for the treatment of zinc deficiencies in many species of trees. Zinc deficiencies associated with calcareous soils are fairly common in numerous fruit, nut and ornamental trees; particularly conifers, pecan, walnut and oaks. Symptoms are usually displayed by a "little leaf" condition, loss of deep green color and in severe situations by a rosetting of the terminal leaves.

STEMIX IRON/ZINC: 0.5-0.9-0.6 is based on the stemix hi vol formulation with enhanced levels of iron and zinc. Iron deficiencies associated with high acid/calcareous soils are fairly common in citrus, walnut, avocado, peach, nectarine, conifers and certain shade trees. Symptoms are usually displayed by leaves having darker green veins with a yellowing or loss of color between veins (generally, young leaves are primarily affected).

MICRO-NUTRIENTS

The INJECT-A-MIN family of micro-nutrients are based on sulfated elements. These products are beneficial in areas where soil conditions are more alkaline. Depending on soil conditions, the affects of these treatments are usually evident over one to five years when compared to adjacent untreated trees.

INJECT-A-MIN IRON/ZINC: 0.6-0.0-0.8 agricultural mineral injectors contain iron and zinc sulfates which are quite effective in rapidly overcoming iron and zinc deficiencies in pin oaks and many other species of trees growing in non-native alkaline soils. Symptoms are usually displayed by leaves having darker green veins with a yellowing or loss of color between veins (young leaves are generally affected).

INJECT-A-MIN MANGANESE: 0.7-0.0-0.85 agricultural mineral injectors contain manganese sulfate which is quite effective in rapidly overcoming manganese deficiencies in palms, maples, citrus and many other species of trees. Symptoms are usually displayed by leaves having darker green veins with a yellowing or loss of color between veins (generally, young leaves are affected).

INSECTICIDES

MAUGET has developed the broadest line of insecticides for micro-injection treatments. The most efficient and environmentally responsible way to apply pesticides. No need to worry about drift, because of "MAUGET'S closed system" this means the chemical is contained entirely within the tree. Only pests feeding on the plants living tissue are directly affected by the chemicals. Beneficial and non target insects and other life forms sharing the environment are not impacted. This provides the applicator with opportunities to treat trees in adverse weather conditions (wind, and rain) or at locations such as; near swimming pools, water ways, in school yards, along busy streets, in interior plantscapes etc.

From the fast acting, to the long lasting, MAUGET has the solution for your clients trees insect problems.

ABACIDE (contains Abamectin 1%): replaces Inject-a-cide av and has an improved formulation improving uptake in Conifers. It is for use by commercial arborists (applicators) on ornamental trees for control of spider mites, leaf miners, elm leaf beetle, sycamore lace bug and fall webworm. It can be applied in commercial or residential landscapes, interior plantscapes and other areas where ornamental trees and woody shrubs are grown. **ABACIDE** contains a warning label and provides long residual with very fast uptake.

IMICIDE (contains Imidacloprid 10%, the active in MERIT®): is available in 3 dosages, 2ml., 3ml., & 4ml. It is for use on plants grown in interior plantscapes, ornamental gardens, parks, golf courses, residential lawns or grounds. Recommended target insects on ornamental trees include; Adelgids, Aphids, Elm leaf beetle, Bronze birch borer, Japanese beetle, Lacebugs, Leafhoppers, Leafminers, Mealybugs, Pine tip moth larvae, Scale insects, Thrips and Whiteflies. **IMICIDE** carries a caution label and provides very long residual (full season plus), preventive applications and broad spectrum control. **IMICIDE** will start controlling infestations within 1 - 7 days following application.

INJECT-A-CIDE B (contains Bidrin 82%): is for use by certified commercial arborists and pesticide applicators with restricted materials licensing on ornamental trees. Available in 1ml., 2ml. and 3ml. dosages. **INJECT-A-CIDE B** is effective against such insect pests as; Aphids, Leafhopper, Bronze birch borer, Gypsy moth, Birch leafminer, Eastern tent caterpillar, Dogwood twig borer, Scale, Elm leaf beetle, Psyllid, Sycamore borer, European pine sawfly, Pine spittlebug, Spider mites, etc. Broad spectrum, restricted use, extremely fast action and uptake. **INJECT-A-CIDE B** carries a class B poison label.

INJECT-A-CIDE (contains Metasystox-R 50%): is for use by certified commercial arborists and pesticide applicators on ornamental trees. Is effective in controlling a large variety of Bark beetles and Engraver beetles in conifers when in active larval stage. **INJECT-A-CIDE** provides a broad spectrum of applications, is restricted use and carries a danger label.

FUNGICIDES

FUNGISOL (contains Debacarb 2.0%): is specifically for micro-injection treatment of over 30 common pathogenic diseases including; Oak wilt , dutch elm disease , Fusarium wilt, Anthracnose, Nectria canker, Verticillium wilt, Coryneum blight, Diplodia tip blight, Phomopis canker, Elm wilt, Cytospora canker, Pink bud rot in palms, Melanconium, etc.. A unique feature of **FUNGISOL** is its ability to translocate to the root zone (phloem mobile), to fight persistent soil born pathogens. This product carries a caution label.

CARBOJECT (contains Oxycarboxin 2.0%): is for the systemic aid in the suppression of certain fungal diseases of ornamental and crop trees (ash and oak Anthracnose, sycamore Anthracnose, Verticillium wilt and V. albo-atrum in camphor, catalpa and maple , Pine pitch girdle, etc.). This product carries a caution label.

TEBUJECT (contains Tebuconazole 4%): a phloem mobile Triazole fungicide developed to control Crabapple scab, Oak wilt, Dutch elm disease and Hawthorn leaf spot. This product carries a caution label.

ANTIBIOTICS

MYCOJECT (contains Oxytetracycline 4.22%): is a systemic aid in the suppression of certain bacterial diseases of ornamental trees. It's uses include Ash yellows, Bacterial leaf scorch in elm and red oak, Phloem necrosis in elm, Palm lethal yellows, Peach x disease, Fire blight in pear, Bunch disease in pecan (non bearing) and Leaf scald in plum (non bearing).
This product carries a caution label.

COMBINATIONS

ABASOL (contains Debacarb 2.0% plus Abamectin 0.48%): is one of several new products where **MAUGET** has combined multiple pesticides to provide disease suppression along with insect control. This product provides both fungicide & insecticide and is very cost effective. With a broad label of 30 pathogens and a wide variety of insects this combination is in a class by itself. This product carries a warning label.

IMISOL (contains Debacarb 2.0% plus Imidacloprid 5%):The second product combining insecticide and a fungicide, similar in use to Abasol except where the insecticide of choice would be **IMICIDE**. This product carries a caution label and is available in 3 dosages (4, 6 & 8ml).

REV. 11/98

OTHER PRODUCTS

FEEDER TUBES:
Four different size feeder tubes are available to accommocate the variety of bark thicknesses. The 7/64" (2.8mm) mini-micro feeder tube provides the smallest wound in the industry and is recommended for use in trees with bark thickness less than 1/2" (12.70mm). Three lengths of standard 11/64" (4.4mm) feeder tubes; 1 3/4" (4.5cm) for trees with bark thickness under 3/4" (9.5mm), 2 3/4" (7cm) standard feeder tube packed with product, 4 1/2" (11cm) feeder tubes for trees with bark thickness in excess of 2" (5.1cm).

INSERTION DEVICE:
Used with the mini-micro feeder tube 7/64" (2.8mm) , enables the tube to be set in the very small drill hole without tissue plugging and interfering with uptake.

MAUGET DIAGNOSTIC FIELD MANUAL :
A must have resource tool for the professional. Provides information on over 60 diseases and insects with color illustrations of life cycle and timing information charts. An excellent tool to explain specific situations to your clients.

APPLICATOR MANUAL:
This resource provides technology background, product information, marketing support and application variables to support the applicator during his developmental period with micro-injection technology.

HOME STUDY COURSE:
This training program includes 4 video tapes and the applicators manual with certification test. It is designed to bring the applicator to a level of knowledge whereby he may confidently start to apply this technology in the field. Required state certification along with MAUGET certification allow him to purchase MAUGET products.

DIRECTIONS

SIX EASY STEPS to apply the MAUGET MICRO-INJECTION PRODUCTS

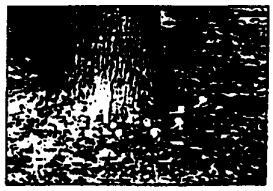
STEP ONE. To determine the number of capsules to be used, measure the trees diameter in inches at breast height and divide by two (If in centimeters, divide by 5.1) or the circumference in inches and divide by six (If in centimeters divide by 15.).

STEP TWO. Drill an 11/64" (4.4mm) diameter hole at the base of the tree, through the bark 1/4-3/8-inch (6.4- 9.5mm) into the trees xylem or sapwood.

STEP THREE. Place feeder tube into the opening of the pressurized capsule then promptly place the unit into the predrilled hole.

STEP FOUR. Tap the base of the capsule opposite the feeder tube with a small mallet to rupture the inner seal of the capsule. This allows the chemical to enter the tree.

STEP FIVE. The predetermined number of capsules from step one, are placed on the root collar, (usually about 4 inches (10.4cm) above ground level.



STEP SIX. When the capsules have drained, turn them over for a minute and carefully remove them with the feeder tubes.

Mauget®

IMICIDE®

SYSTEMIC INSECTICIDE
IN READY TO USE CAPSULES

FOR TREE INJECTION USE FOR SEASONAL CONTROL OF CERTAIN INSECTS ON ORNAMENTAL TREES

ACTIVE INGREDIENT:
Imidacloprid (110.7 mg/mL)
1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine.....10.0%

INERT INGREDIENTS..... 90.0%
100.0%

KEEP OUT OF REACH OF CHILDREN

CAUTION

	FIRST AID
IF INHALED	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance. Then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
IF ON THE SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-535-5053 for emergency treatment information.	

NOTE TO PHYSICIAN
There is no specific antidote available. Treat Patient symptomatically.

Mfg. By: J.J. Mauget Co.
Town, State: Arcadia, CA 91006
EPA Reg. No.: 7946-16
EPA Est. No.: 7946-CA-1

Net Contents: 25 capsules plus 25 feeder tubes per carton.
_____ 25 capsules @ 2mL, 50 mL net, or
_____ 25 capsules @ 3mL, 75 mL net, or
_____ 25 capsules @ 4 mL, 100 mL net
_____ Shipping box: 12 Cartons as above.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. Causes eye irritation. Wash thoroughly with soap and water after handling. Avoid breathing vapors. Remove contaminated clothing and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT:
Some Materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selection chart.

APPLICATOR AND OTHER HANDLERS MUST WEAR:
- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical resistant gloves, such as polyethylene or butyl rubber or neoprene rubber or viton
- Protective eyewear

ENVIRONMENTAL HAZARDS:

This pesticide is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

PHYSICAL OR CHEMICAL HAZARDS:

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with it's labeling and the Worker Protection Standard, 40 CFR 170. This standard contains requirements for the protection of agricultural workers on farms, forest, nurseries and greenhouses, and the handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Rev. 03/15/02A

GENERAL DIRECTIONS

Measure the tree at chest height in inches. If measuring the circumference of the tree, divide this number by six (6) to determine the number of capsules needed. If measuring the diameter of the tree (DBH), divide this number by two (2) to determine the number of capsules needed. It is preferred to apply the injector units around the tree at the root flare.

The following dosage, per capsule, is generally recommended depending on tree diameter;

2 ml capsules - 2 to 10 inches DBH
3 ml capsules - 10 to 36 inches DBH; or
4 ml capsules - 36 inches DBH and above

For heavier infestation and / or more resistant insects, it is recommended that 3 mL capsules or 4 mL capsules be used on trees having a DBH of 2 inches and above.

Consult the enclosed pamphlet "Directions for use and application of Mauget "Micro-Injection System" for additional instructions. Applicators shall remove capsules promptly after treatment. Trees in advanced stages of insect infestations may not respond to treatment. The health of the tree and the environmental conditions will determine the rate of uptake.

RECOMMENDED TARGET INSECTS ON ORNAMENTAL TREES

ADELGIDS
APHIDS
BLACK VINE WEEVIL LARVAE
BRONZE BIRCH BORER
COTTONWOOD LONGHORNED BORER *
ELM LEAF BEETLE
EUCALYPTUS LONGHORNED BORER
FLATHEADED BORER (including Alder Birch Borer)
JAPANESE BEETLE
LACEBUGS
LEAFHOPPERS
LEAFMINERS
MEALYBUGS
PINE TIP MOTH LARVAE
PSYLLIDS (INCLUDING LERP PSYLLID)
ROYAL PALM BUGS
SCALE INSECTS
THRIPS
WHITEFLIES

ASIAN LONGHORNED BEETLE
CITRUS LONGHORNED BEETLE

For use under USDA supervision.
4 mL capsules recommended on all trees 2 inches DBH and above. See General Directions.

* Imicide is not registered in California for controlling this insect

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

STORAGE: Store capsules in an upright position, above 45°F, in a cool, dry place.

PESTICIDE DISPOSAL: Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Dispose of empty capsules in a sanitary landfill or by incineration if approved by State and local authorities.

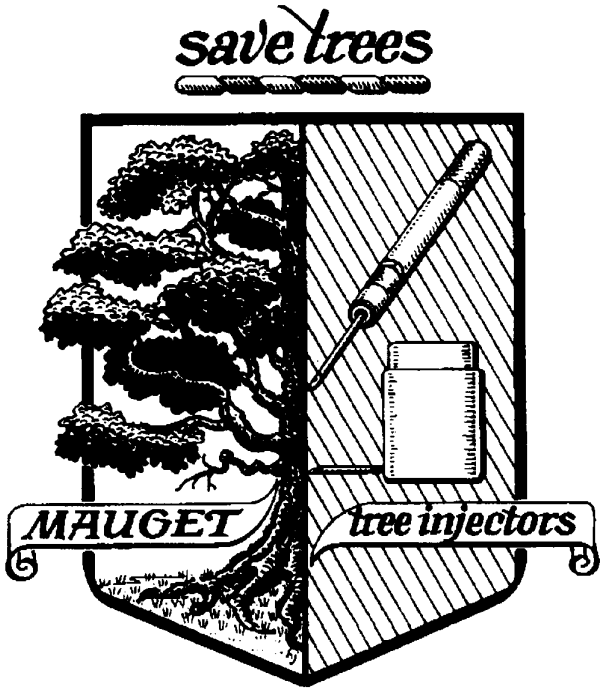
RESTRICTIONS

Do not inject trees that are less than two inches in diameter.

This product is not to be used on trees which will produce food within the year following treatment.

NOTICE OF WARRANTY

J.J. MAUGET CO. MAKES NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PURPOSE OR OTHERWISE, EXPRESSED OR IMPLIED CONCERNING THIS PRODUCT OR ITS USE WHICH EXTEND BEYOND THE USE OF THE PRODUCT UNDER NORMAL CONDITIONS IN ACCORD WITH THE STATEMENTS MADE ON THIS LABEL.



Merit® 2

Insecticide

For foliar and systemic insect control in turfgrass (including sod farms), landscape ornamentals, fruit and nut trees and interior plantscapes.

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]--*N*-nitro-2-imidazolidinimin	21.4%
OTHER INGREDIENTS	78.6%
	100.0%

Contains 2 pounds of imidacloprid per gallon

SHAKE WELL BEFORE USING

EPA Reg. No. 3125-418 Four 1 gallon jugs per case

STOP - Read the label before use.
Keep out of reach of children.

CAUTION

PRECAUCION AL USUARIO: Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

(TO THE USER: If you cannot read or understand English, do not use this product until the label has been fully explained to you.)

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Keep children or pets off treated area until spray is dry.

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants
- Water-proof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering controls statements:

- When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
In case of emergency call toll free the Bayer Kansas City Emergency Response Telephone No. 800-414-0244. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

IMPORTANT: Read these entire DIRECTIONS FOR USE, GENERAL INFORMATION, AND CONDITIONS OF SALE before using MERIT 2 Insecticide.

CONDITIONS OF SALE: THE DIRECTIONS ON THIS LABEL WERE DETERMINED THROUGH RESEARCH TO BE APPROPRIATE FOR THE CORRECT USE OF THIS PRODUCT. THIS PRODUCT HAS BEEN TESTED UNDER DIFFERENT ENVIRONMENTAL CONDITIONS BOTH INDOORS AND OUTDOORS UNDER CONDITIONS SIMILAR TO THOSE THAT ARE ORDINARY AND CUSTOMARY WHERE THE PRODUCT IS TO BE USED. INSUFFICIENT CONTROL OF PESTS OR PLANT INJURY MAY RESULT FROM THE OCCURRENCE OF EXTRAORDINARY OR UNUSUAL CONDITIONS, OR FROM FAILURE TO FOLLOW LABEL DIRECTIONS. IN ADDITION, FAILURE TO FOLLOW LABEL DIRECTIONS MAY CAUSE INJURY TO ANIMALS, MAN, AND DAMAGE TO THE ENVIRONMENT. BAYER OFFERS, AND THE BUYER ACCEPTS AND USES, THIS PRODUCT SUBJECT TO THE CONDITIONS THAT EXTRAORDINARY OR UNUSUAL ENVIRONMENTAL CONDITIONS, OR FAILURE TO FOLLOW LABEL DIRECTIONS ARE BEYOND THE CONTROL OF BAYER AND ARE, THEREFORE, THE RESPONSIBILITY OF THE BUYER.

Do not formulate this product into other end-use products.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. Exception: If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children and pets off treated area until dry.

APPLICATION TO TURFGRASS

MERIT 2 Insecticide can be used for the control of soil inhabiting pests of turfgrass, such as Northern & Southern masked chafers, *Cyclocephala borealis, C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotroqus majalis;* Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis;* Billbugs, *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass ataenius, *Ataenius spretulus* and *Aphodius* spp. and mole crickets,. scapteriscus spp. MERIT 2 Insecticide can also be used for suppression of cutworms and chinchbugs. MERIT 2 Insecticide can be used as directed on turfgrass in sites such as home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms.

The active ingredient in MERIT 2 Insecticide has sufficient residual activity so that applications can be made preceding the egg laying activity of the target pests. High levels of control can be achieved when applications are made preceding or during the egg laying period. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Optimum control will be achieved when applications are made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

Applications should not be made when turfgrass areas are waterlogged or the soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treated turf area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile. Applications cannot exceed a total of 1.6 pints (0.4 lb of active ingredient) per acre per year.

APPLICATION EQUIPMENT FOR USE ON TURFGRASS

Apply MERIT 2 Insecticide in sufficient water to provide adequate distribution in the treated area. The use of accurately calibrated equipment normally used for the application of turfgrass insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

APPLICATION TO ORNAMENTALS

MERIT 2 Insecticide is for use on ornamentals in commercial and residential landscapes and interior plantscapes. MERIT 2 Insecticide is a systemic product and will be translocated upward into the plant system from root uptake. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests.

When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

For outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pints (0.4 lb of active ingredient) per acre per year.

Ant Management Programs

Use MERIT 2 to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for ant poplulations. MERIT 2 applications can be then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

NOTE: Not for use in commercial greenhouses, nurseries, or on grasses grown for seed, or on commercial fruit and nut trees.

APPLICATION EQUIPMENT FOR FOLIAR APPLICATIONS

MERIT 2 Insecticide mixes readily with water and may be used in many types of application equipment. Mix product with the required amount of water and apply as desired dependent upon the selected use pattern.

When making foliar applications on hard to wet foliage such as holly, pine, or ivy, the addition of a spreader/ sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application.

MERIT 2 Insecticide has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. Check physical compatibility using the correct proportion of products in a small jar test if local experience is unavailable.

Do not apply through any irrigation system.

RECOMMENDED APPLICATIONS

CROP	PEST	DOSAGE MERIT 2
Turf Grasses	**Larvae of:** Annual bluegrass weevil Asiatic garden beetle Billbug Black turfgrass ataenius Cutworms (suppression) European chafer Green June beetle Japanese beetle Northern masked chafer Oriental beetle *Phyllophaga* spp. Southern masked chafer	1 .25 to 1.6 pt/A or 0.46 to 0.6 fl oz (14 to 17 mL) per 1000 sq ft
	For optimum control of grubs, billbugs and annual bluegrass weevil, make application prior to egg hatch of the target pest. Be sure to read "APPLICATION EQUIPMENT" Section of this label.	
	Chinchbugs (suppression) Mole crickets	1.6 pt /A or 0.6 fl oz (17 mL) per 1000 sq ft
	For suppression of chinchbugs, make application prior to the hatching of the first instar nymphs. For control of mole crickets make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, MERIT application should be accompanied by a curative insecticide. Follow label instructions for other insecticides when tank-mixing.	
Consult your local turf, state Agricultural Experiment Station, or State Extension Service Specialists for more specific information regarding timing of application. NOTE: For optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. Do not apply more than 1.6 pt (0.4 lb of active ingredient) per acre per year. Avoid mowing turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	DOSAGE MERIT 2
Trees Shrubs Evergreens Flowers Foliage plants Groundcovers Interior plantscapes	Adelgids Aphids Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Sawfly larvae Thrips (suppression) Whiteflies	1.5 fl oz (45 mL) per 100 gal of water
	Foliar Applications: Start treatments prior to establishment of high pest populations and reapply on an as needed basis.	
	White grub larvae (such as Japanese beetle larvae, Chafers, *Phyllophaga* spp. Asiatic garden beetle, Oriental beetle)	0.46 to 0.6 fl oz (14 to 17 mL) per 1000 sq ft
	Broadcast Applications: Mix required amount of product in sufficient water to uniformly and accurately cover the area being treated. Do not use less than 2 gallons of water per 1000 sq ft. For optimum control, irrigate thoroughly to incorporate MERIT 2 Insecticide into the upper soil profile. Refer to use directions specific for FLOWERS and GROUND COVERS concerning additional use directions.	

RECOMMENDED APPLICATIONS TREES, SHRUBS, FLOWERS AND GROUNDCOVERS

For use only in and around industrial and commercial buildings and residential areas

Adelgids	Japanese beetles	Pine tip moth larvae
Aphids	Lace bugs	Psyllids
Armored scales (suppression)	Leaf beetles (including elm and viburnum leaf beetles)	Royal palm bugs
Black vine weevil larvae	Leafhoppers (including glassy-winged sharpshooter)	Sawfly larvae
Eucalyptus longhorned borer	Leafminers	Soft scales
Flatheaded borers (including bronze birch and alder borer)	Mealybugs	Thrips (suppression)
		White grub larvae
		Whiteflies

Trees	0.1 to 0.2 fl oz (3 to 6 mL) per inch of trunk diameter (D.B.H.)

Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

For Control of Specified Borers: Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.

Shrubs	0.1 to 0.2 fl oz (3 to 6 mL) per foot of shrub height

Soil Injection: Apply to individual plants using dosage indicated.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per shrub.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

Flowers and Groundcovers	0.46 to 0.6 fl oz (14 to 17 mL) per 1000 sq ft

Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.

RECOMMENDED APPLICATIONS

For use only in and around residential areas

CROP	PEST	RATE PER APPLICATION	
Pome Fruits Apple Crabapple Loquat Mayhaw Pear Pear (oriental) Quince	Aphids (except Wooly apple aphid) Leafhoppers (including glassy-winged sharpshooter) Leafminer Mealybugs* San Jose scale*	1.5 fl oz (45 mL) per 100 gal	6.0 fl oz/A[1]

Apply specified dosage as foliar spray as needed after petal-fall is complete.

For control of rosy apple aphid, apply prior to leafrolling caused by the pest.

For first generation leafminer control, make first application as soon as petal-fall is complete. Greatest leafminer control will result from the earliest possible application. For second and succeeding generations of leafminer, optimal control is obtained from applications made early in the adult flight against egg and early instar larvae. A second application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. MERIT 2 will not control late stage larvae.

For San Jose Scale, time applications to the crawler stage. Treat each generation.

For late season (preharvest) control of leafhopper species, apply MERIT 2 while most leafhoppers are in the nymphal stage.

For optimal control of mealybug, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the mealybug.

Do not apply more than 6.0 fluid ounces per acre in a single application. Do not make more than 5 applications.

Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.

* Not for use in California for control on pears.

Pecan*	Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	1.5 fl oz (45 mL) per 100 gal	6.0 fl oz/A[1]

Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14 day interval may be required to achieve control. Scout and retreat if needed.

Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's recommended use rate may improve coverage.

Do not apply more than a total of 18.0 fluid ounces of MERIT 2 per acre per year. Do not make more than 3 applications.

Allow 10 or more days between applications.

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	RATE PER APPLICATION	
Grapes	Leafhoppers (including glassy-winged sharpshooter) Mealybugs	1.5 fl oz (45 mL) per 100 gal	3.0 fl oz/A (90 mL/A)

Apply specified dosage as a foliar spray using 200 gallons of water per acre. Do not apply more than a total of 6.0 ounces of MERIT 2 per acre per year. Allow at least 14 days between applications. Applications may be applied up to and including day of harvest.

RESTRICTIONS

Do not graze treated areas or use clippings from treated areas for feed or forage. Avoid runoff or puddling of irrigation water following application. Keep children and pets off treated area until dry. Avoid application of MERIT 2 Insecticide to areas which are water logged or saturated, which will not allow penetration into the root zone of the plant. Do not apply more than 1.6 pt (0.4 lb of active ingredient) per acre per year.

Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient.

For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides above. In spill or leak incidents, keep unauthorized people away. You may contact the Bayer Emergency Response Team for decontamination procedures or any other assistance that may be necessary. The Bayer Kansas City Emergency Response telephone number is 800-414-0244, or contact Chemtrec at 800-424-9300.

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Bayer Corporation
Professional Care
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Kansas City, MO 64120-0013
(800) 842-8020
http://bayerprocentral.com
ME 0206 BPC Printed in U.S.A.

IMPORTANT

Before using this product, read and carefully observe the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

Merit 2 6

Merit® 75 WP

Insecticide

For foliar and systemic insect control in turfgrass (including sod farms), landscape ornamentals, fruit and nut trees, and interior plantscapes.

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]--*N*-nitro-2-imidazolidinimine	75%
OTHER INGREDIENTS	25%
	100%

EPA Reg. No. 3125-421 Eight 2-oz Bottles Per Case

STOP - Read the label before use.
Keep out of reach of children.

CAUTION

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets off treated area until spray is dry.

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants
- Water-proof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering controls statements:

- When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
In case of emergency call toll free the Bayer Kansas City Emergency Response Telephone No. 800-414-0244. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

IMPORTANT: Read these entire DIRECTIONS FOR USE, GENERAL INFORMATION, AND CONDITIONS OF SALE before using MERIT 75 WP Insecticide.

CONDITIONS OF SALE: THE DIRECTIONS ON THIS LABEL WERE DETERMINED THROUGH RESEARCH TO BE APPROPRIATE FOR THE CORRECT USE OF THIS PRODUCT. THIS PRODUCT HAS BEEN TESTED UNDER DIFFERENT ENVIRONMENTAL CONDITIONS BOTH INDOORS AND OUTDOORS UNDER CONDITIONS SIMILAR TO THOSE THAT ARE ORDINARY AND CUSTOMARY WHERE THE PRODUCT IS TO BE USED. INSUFFICIENT CONTROL OF PESTS OR PLANT INJURY MAY RESULT FROM THE OCCURRENCE OF EXTRAORDINARY OR UNUSUAL CONDITIONS, OR FROM FAILURE TO FOLLOW LABEL DIRECTIONS. IN ADDITION, FAILURE TO FOLLOW LABEL DIRECTIONS MAY CAUSE INJURY TO ANIMALS, MAN, AND DAMAGE TO THE ENVIRONMENT. BAYER OFFERS, AND THE BUYER ACCEPTS AND USES, THIS PRODUCT SUBJECT TO THE CONDITIONS THAT EXTRAORDINARY OR UNUSUAL ENVIRONMENTAL CONDITIONS, OR FAILURE TO FOLLOW LABEL DIRECTIONS ARE BEYOND THE CONTROL OF BAYER AND ARE, THEREFORE, THE RESPONSIBILITY OF THE BUYER.

Do not formulate this product into other end-use products.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. Exception: If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children and pets off treated area until dry.

APPLICATION TO TURFGRASS

MERIT 75 WP Insecticide can be used for the control of soil inhabiting pests of turfgrass, such as Northern & Southern masked chafers, *Cyclocephala borealis, C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotroqus majalis;* Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis;* Billbugs, *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass ataenius, *Ataenius spretulus* and *Aphodius* spp; and Mole crickets, *Scapteriscus* spp. MERIT 75 WP Insecticide can also be used for the suppression of cutworms and chinchbugs in turfgrass areas. MERIT 75 WP Insecticide can be used as directed on turfgrass in sites such as home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms.

The active ingredient in MERIT 75 WP Insecticide has sufficient residual activity so that applications can be made preceding the egg laying activity of the target pests. High levels of control can be achieved when applications are made preceding or during the egg laying period. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Optimum control will be achieved when applications are made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

Applications should not be made when turfgrass areas are waterlogged or the soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treated turf area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile. Applications cannot exceed a total of 8.6 oz (0.4 lb of active ingredient) per acre per year.

Application Equipment for Use on Turfgrass
Apply MERIT 75 WP Insecticide in sufficient water to provide adequate distribution in the treated area. The use of accurately calibrated equipment normally used for the application of turfgrass insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

APPLICATION TO ORNAMENTALS
MERIT 75 WP Insecticide is for use on ornamentals in commercial and residential landscapes and interior plantscapes. MERIT 75 WP Insecticide is a systemic product and will be translocated upward into the plant system from root uptake. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests.

When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

For outdoor ornamentals, **broadcast applications** cannot exceed a total of 8.6 oz (0.4 lb of active ingredient) per acre per year.

Ant Management Programs
Use MERIT 75 WP to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for ant poplulations. MERIT 75 WP applications can be then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

NOTE: Not for use in commercial greenhouses, nurseries, or on grasses grown for seed, or on commercial fruit and nut trees.

Application Equipment for Foliar Applications

MERIT 75 WP Insecticide mixes readily with water and may be used in many types of application equipment. Mix product with the required amount of water and apply as desired dependent upon the selected use pattern.

When making foliar applications on hard to wet foliage such as holly, pine, or ivy, the addition of a spreader/ sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application.

MERIT 75 WP Insecticide has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. Check physical compatibility using the correct proportion of products in a small jar test if local experience is unavailable.

Do not apply through any irrigation system.

RECOMMENDED APPLICATIONS

CROP	PEST	DOSAGE MERIT 75 WP
Turfgrasses	**Larvae of:** Annual bluegrass weevil Asiatic garden beetle Billbug Black turfgrass ataenius Cutworms (suppression) European chafer Green June beetle Japanese beetle Northern masked chafer Oriental beetle *Phyllophaga* spp. Southern masked chafer	6.4 to 8.6 oz per acre or 3 to 4 level teaspoons per 1000 sq ft
	For optimum control of grubs, billbugs and annual bluegrass weevil, make application prior to egg hatch of the target pest. Be sure to read "APPLICATION EQUIPMENT" Section of this label. NOTE: 1 level teaspoon = 1.4 grams MERIT 75 WP 3 level teaspoons = 1 level Tablespoon	
	Chinchbug (suppression) Mole crickets	8.6 oz per acre or 4 level teaspoons per 1000 sq ft
	For suppression of chinchbugs, make application prior to the hatching of the first instar nymphs. For control of mole crickets make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, MERIT application should be accompanied by a curative insecticide. Follow label instructions for other insecticides when tank-mixing.	
Consult your local State Agricultural Experiment Station, or State Extension Turf Specialists for more specific information regarding timing of application. NOTE: For optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. Do not apply more than 8.6 oz (0.4 lb of active ingredient) per acre per year. Avoid mowing turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	DOSAGE MERIT 75 WP	
Trees Shrubs Evergreens Flowers Foliage plants Groundcovers Interior plantscapes	Adelgids Aphids Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Sawfly larvae Thrips (suppression) Whiteflies	MERIT 75 WP (level measure) 0.25 tsp. 0.5 tsp. 1 tsp. 2.5 tsp. 5 tsp. 3 Tbsp. + 1 tsp.	WATER 2.5 gal. 5 gal. 10 gal. 25 gal. 50 gal. 100 gal.
	Foliar Applications: Start treatments prior to establishment of high pest populations and reapply on an as needed basis.		
	White grub larvae (such as Japanese beetle larvae, Chafers, *Phyllophaga* spp. Asiatic garden beetle, Oriental beetle)	3 to 4 level teaspoons per 1000 sq ft	
	Broadcast Applications: Mix required amount of product in sufficient water to uniformly and accurately cover the area being treated. Do not use less than 2 gallons of water per 1000 sq ft. For optimum control, irrigate thoroughly to incorporate MERIT 75 WP Insecticide into the upper soil profile. Refer to use directions specific for FLOWERS and GROUNDCOVERS concerning additional use directions.		

RECOMMENDED APPLICATIONS
Trees, Shrubs, Flowers and Groundcovers

For use only in and around industrial and commercial buildings and residential areas to control the following pests:

Adelgids Aphids Armored scales (suppression) Black vine weevil larvae Eucalyptus longhorned borer Flatheaded borers (including bronze birch borer and alder borer)	Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs	Pine tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales Thrips (suppression) White grub larvae Whiteflies

Trees	0.7 to 1.4 level teaspoons MERIT 75 WP per inch of trunk diameter (D.B.H.) or 1 to 2 ounces per 30 cumulative inches of trunk diameter(D.B.H)

Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

For Control of Specified Borers: Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.

Shrubs	0.7 to 1.4 level teaspoons MERIT 75 WP per foot of shrub height or 1 to 2 ounces per 30 cumulative feet of shrub height

Soil Injection: Apply to individual plants using dosage indicated.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per shrub.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the shrub, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

Flowers and Groundcovers	3 to 4 level teaspoons MERIT 75 WP per 1000 sq ft

Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.

NOTE: 1 level teaspoon = 1.4 grams MERIT 75 WP
3 level teaspoons = 1 level Tablespoon

RECOMMENDED APPLICATIONS

For use only in and around residential areas

CROP	PEST	RATE PER APPLICATION	
Pome Fruits Apple Crabapple Loquat Mayhaw Pear Pear (oriental) Quince	Aphids (except Wooly apple aphid) Leafhoppers (including glassy-winged sharpshooter) Leafminer Mealybugs* San Jose scale*	0.5 oz (3 Tbsp. + 1 tsp.) per 100 gal	2 oz per acre[1]

Apply specified dosage as foliar spray as needed after petal-fall is complete.

For control of rosy apple aphid, apply prior to leafrolling caused by the pest.

For first generation leafminer control, make first application as soon as petal-fall is complete. Greatest leafminer control will result from the earliest possible application. For second and succeeding generations of leafminer, optimal contrd is obtained from applications made early in the adult flight against egg and early instar larvae. A second application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. MERIT 75 WP will not control late stage larvae.

For San Jose Scale, time applications to the crawler stage. Treat each generation.

For late season (preharvest) control of leafhopper species, apply MERIT 75 WP while most leafhoppers are inthe nymphal stage.

For optimal control of mealybug, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the mealybug.

Do not apply more than 2 ounces per acre in a single application. Do not make more than 5 applicatbns.

Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.

* Not for use in California for control on pears.

Pecan*	Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	0.5 oz (3 Tbsp. + 1 tsp.) per 100 gal	2.0 oz per acre[1]

Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14 day interval may be required to achieve control. Scout and retreat if needed.

Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's recommended use rate may improve coverage.

Do not apply more than a total of 6 ounces of MERIT 75 WP per acre per year. Do not make more than 3 applications.

Allow 10 or more days between applications.

* Use on pecans not permitted in California unless directed by specific supplemental labeling.

1 The amount of MERIT 75 WP required per acre will depend on tree size and volume of foliage present. The rate per acre is based on a standard of 400 gallons of dilute spray solution per acre for large trees.

NOTE: 1 level teaspoon = 1.4 grams MERIT 75 WP
3 level teaspoons = 1 level Tablespoon

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	RATE PER APPLICATION	
Grapes	Leafhoppers (including glassy-winged sharpshooter) Mealybugs	0.5 oz (3 Tbsp. + 1 tsp.) per 100 gal	1.0 oz per acre

Apply specified dosage as a foliar spray using 200 gallons of water per acre. Do not apply more than a total of 2.0 ounces of MERIT 75 WP per acre per year. Allow at least 14 days between applications. Applications may be applied up to and including day of harvest.

NOTE: 1 level teaspoon = 1.4 grams MERIT 75 WP
3 level teaspoons = 1 level Tablespoon

RESTRICTIONS

Do not graze treated areas or use clippings from treated areas for feed or forage. Avoid runoff or puddling of irrigation water following application. Keep children and pets off treated area until dry. Avoid application of MERIT 75 WP Insecticide to areas which are water logged or saturated, or frozen, which will not allow penetration into the root zone of the plant. Do not apply more than 8.6 oz (0.4 lb of active ingredient) per acre per year.

Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient.

For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. You may contact the Bayer Emergency Response Team for decontamination procedures or any other assistance that may be necessary. The Bayer Kansas City Emergency Response telephone number is 800-414-0244 or contact Chemtrec at 800-424-9300.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

B - 9570b-1 6/12/01

Bayer Corporation
Professional Care
Box 4913
Kansas City, MO 64120-0013
(800) 842-8020
http://bayerprocentral.com
ME 0207 BPC Printed in U.S.A.

IMPORTANT

Before using this product, read and carefully observe the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

Merit® 75 WSP

Insecticide

For foliar and systemic insect control in turfgrass (including sod farms), landscape ornamentals, fruit and nut trees, and interior plantscapes.

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]--*N*-nitro-2-imidazolidinimine	75%
OTHER INGREDIENTS	25%
	100%

Keep water soluble packets in this container and store in a cool dry place but not below freezing (32° F).

Do Not Remove Packets From Container Except For Immediate Use.

EPA Reg. No. 3125-439

Four 1.6-oz Packets Per Carton, Four Cartons Per Case
Or Eighty-eight 1.6-oz Packets Per Mini-drum

STOP - Read the label before use.
Keep out of reach of children.

CAUTION

PRECAUCION AL USUARIO: Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

(TO THE USER: If you cannot read or understand English, do not use this product until the label has been fully explained to you.)

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets off treated area until spray is dry.

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants
- Water-proof gloves
- Shoes plus socks

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering controls statements:

- When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
In case of emergency call toll free the Bayer Kansas City Emergency Response Telephone No. 800-414-0244. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

IMPORTANT: Read these entire DIRECTIONS FOR USE, GENERAL INFORMATION, AND CONDITIONS OF SALE before using MERIT 75 WSP Insecticide.

CONDITIONS OF SALE: THE DIRECTIONS ON THIS LABEL WERE DETERMINED THROUGH RESEARCH TO BE APPROPRIATE FOR THE CORRECT USE OF THIS PRODUCT. THIS PRODUCT HAS BEEN TESTED UNDER DIFFERENT ENVIRONMENTAL CONDITIONS BOTH INDOORS AND OUTDOORS UNDER CONDITIONS SIMILAR TO THOSE THAT ARE ORDINARY AND CUSTOMARY WHERE THE PRODUCT IS TO BE USED. INSUFFICIENT CONTROL OF PESTS OR PLANT INJURY MAY RESULT FROM THE OCCURRENCE OF EXTRAORDINARY OR UNUSUAL CONDITIONS, OR FROM FAILURE TO FOLLOW LABEL DIRECTIONS. IN ADDITION, FAILURE TO FOLLOW LABEL DIRECTIONS MAY CAUSE INJURY TO ANIMALS, MAN, AND DAMAGE TO THE ENVIRONMENT. BAYER OFFERS, AND THE BUYER ACCEPTS AND USES, THIS PRODUCT SUBJECT TO THE CONDITIONS THAT EXTRAORDINARY OR UNUSUAL ENVIRONMENTAL CONDITIONS, OR FAILURE TO FOLLOW LABEL DIRECTIONS ARE BEYOND THE CONTROL OF BAYER AND ARE, THEREFORE, THE RESPONSIBILITY OF THE BUYER.

Do not formulate this product into other end-use products.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. Exception: If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children and pets off treated area until dry.

APPLICATION TO TURFGRASS

MERIT 75 WSP Insecticide can be used for the control of soil inhabiting pests of turfgrass, such as Northern & Southern masked chafers, *Cyclocephala borealis, C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotroqus majalis;* Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis;* Billbugs, *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass ataenius, *Ataenius spretulus* and *Aphodius* spp.; and mole crickets, *Scapteriscus* spp. MERIT 75 WSP Insecticide can also be used for the suppression of cutworms and chinchbugs in turfgrass areas. MERIT 75 WSP Insecticide can be used as directed on turfgrass in sites such as home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms.

The active ingredient in MERIT 75 WSP Insecticide has sufficient residual activity so that applications can be made preceding the egg laying activity of the target pests. High levels of control can

be achieved when applications are made preceding or during the egg laying period. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Optimum control will be achieved when applications are made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

Applications should not be made when turfgrass areas are waterlogged or the soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treated turf area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile. Applications cannot exceed a total of 8.6 oz (0.4 lb of active ingredient) per acre per year.

Application Equipment for Use on Turfgrass
Apply MERIT 75 WSP Insecticide in sufficient water to provide adequate distribution in the treated area. The use of accurately calibrated equipment normally used for the application of turfgrass insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

APPLICATION TO ORNAMENTALS
MERIT 75 WSP Insecticide is for use on ornamentals in commercial and residential landscapes and interior plantscapes. MERIT 75 WSP Insecticide is a systemic product and will be translocated upward into the plant system from root uptake. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests.

When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

For outdoor ornamentals, **broadcast applications** cannot exceed a total of 8.6 oz (0.4 lb of active ingredient) per acre per year.

Ant Management Programs
Use MERIT 75 WSP to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for ant populations. MERIT 75 WSP applications can be then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

NOTE: Not for use in commercial greenhouses, nurseries, or on grasses grown for seed, or on commercial fruit and nut trees.

Application Equipment for Foliar Applications
MERIT 75 WSP Insecticide mixes readily with water and may be used in many types of application equipment. Mix product with the required amount of water and apply as desired dependent upon the selected use pattern.

When making foliar applications on hard to wet foliage such as holly, pine, or ivy, the addition of a spreader/ sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application.

MIXING: Within each foil pouch is a clear inner packet containing MERIT 75 WSP Insecticide. The clear inner packet is **water soluble**. Do not allow packets to become wet prior to adding to the spray tank. Do not handle the clear inner packets with wet hands or wet gloves. Rough handling may cause breakage. Reseal outer carton to protect remaining packets.

To prepare the spray mixture, remove the outer foil pouch and drop the required number of **unopened** clear water soluble packets, as determined under "Recommended Applications", into the spray tank while filling with water to the desired level. Operate the agitator while mixing. Depending on the water temperature and the degree of agitation, the packets should be completely dissolved within a few minutes from the time they are added to the water. Cooler water temperatures increase the time needed for the inner packet to dissolve completely.

NOTE: Do not use MERIT WSP packets in a tank-mix with products that contain Boron or release free chlorine. The resultant reaction of PVA and boron or free chlorine is a plastic which is not soluble in water or solvents such as diesel oils, kerosene, gasoline or alcohol. Do not attempt to use the WSP packets directly in diesel oils or summer spray type oils as in ULV or LV uses. PVA packets are water soluble not oil soluble. Use of chlorinated water is acceptable.

MERIT 75 WSP Insecticide has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. Check physical compatibility using the correct proportion of products in a small jar test if local experience is unavailable.

Do not apply through any irrigation system.

RESTRICTIONS

Do not graze treated areas or use clippings from treated areas for feed or forage. Avoid runoff or puddling of irrigation water following application. Keep children and pets off treated area until dry. Avoid application of MERIT 75 WSP Insecticide to areas which are water logged or saturated, or frozen, which will not allow penetration into the root zone of the plant. Do not apply more than 8.6 oz (0.4 lb of active ingredient) per acre per year.

Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient.

For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.

RECOMMENDED APPLICATIONS

CROP	PEST	DOSAGE MERIT 75 WSP
Turfgrasses	**Larvae of:** Annual bluegrass weevil Asiatic garden beetle Billbug Black turfgrass ataenius Cutworm (suppression) European chafer Green June beetle Japanese beetle Northern masked chafer Oriental beetle *Phyllophaga* spp. Southern masked chafer	1.6 oz (1 Packet) per 8,250 to 11,000 sq ft
	For optimum control of grubs, billbugs and annual bluegrass weevil, make application prior to egg hatch of the target pest. Be sure to read "APPLICATION EQUIPMENT" Section of this label.	
	Chinchbug (suppression) Mole cricket	1.6 oz (1 packet) per 8,250 sq ft
	For suppression of chinchbugs, make application prior to hatching of the first instar nymphs. For control of mole crickets make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, MERIT application should be accompanied by a curative insecticide. Follow label instructions for other insecticides when tank-mixing.	
Consult your local State Agricultural Experiment Station, or State Extension Turf Specialists for more specific information regarding timing of application. **NOTE:** For optimum control, irrigation or rainfall should occur within 24 hours after application to move the active ingredient through the thatch. Do not apply more 8.6 oz (0.4 lb of active ingredient) per acre per year. Avoid mowing turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	DOSAGE MERIT 75 WSP
Trees Shrubs Evergreens Flowers Foliage plants Groundcovers Interior plantscapes	Adelgids Aphids Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Sawfly larvae Thrips (suppression) Whiteflies	1.6 oz (1 packet) per 300 gal of water
	Foliar Applications: Start treatments prior to establishment of high pest populations and reapply on an as needed basis.	
	White grub larvae (such as Japanese beetle larvae, Chafers, *Phyllophaga* spp. Asiatic garden beetle, Oriental beetle)	1.6 oz (1 packet) per 8,250 to 11,000 sq ft
	Broadcast Applications: Mix required amount of product in sufficient water to uniformly and accurately cover the area being treated. Do not use less than 2 gallons of water per 1000 sq ft. For optimum control, irrigate thoroughly to incorporate MERIT 75 WSP Insecticide into the upper soil profile. Refer to use directions specific for FLOWERS and GROUNDCOVERS concerning additional use directions.	

RECOMMENDED APPLICATIONS
Trees, Shrubs, Flowers and Groundcovers

For use only in and around industrial and commercial buildings and residential areas to control the following pests:

- Adelgids
- Aphids
- Armored scales (suppression)
- Black vine weevil larvae
- Eucalyptus longhorned borer
- Flatheaded borers (including bronze birch borer and alder borer)
- Japanese beetles
- Lace bugs
- Leaf beetles (including elm and viburnum leaf beetles)
- Leafhoppers (including glassy-winged sharpshooter)
- Leafminers
- Mealybugs
- Pine tip moth larvae
- Psyllids
- Royal palm bugs
- Sawfly arvae
- Soft scales
- Thrips (suppression)
- White grub larvae
- Whiteflies

Trees	1.6 oz (1 packet) MERIT 75 WSP per 24 to 48 inches of cumulative trunk diameter

Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

For Control of Specified Borers: Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.

Shrubs	1.6 oz (1 packet) MERIT 75 WSP per 24 to 48 ft of cumulative shrub height

Soil Injection: Apply to individual plants using dosage indicated. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per shrub.

No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the shrub, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

Flowers and Groundcovers	1.6 oz (1 packet) MERIT 75 WSP per 8,250 to 11,000 sq ft

Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.

RECOMMENDED APPLICATIONS

For use only in and around residential areas

CROP	PEST	RATE PER APPLICATION	
Pome Fruits Apple Crabapple Loquat Mayhaw Pear Pear (oriental) Quince	Aphids (except Wooly apple aphid) Leafhoppers (including glassy-winged sharpshooter) Leafminer Mealybugs* San Jose Scale*	1.6 oz (1 packet) per 300 gal of water)	2.1 oz per acre[1]

Apply specified dosage as foliar spray as needed after petal-fall is complete.

For control of rosy apple aphid, apply prior to leafrolling caused by the pest.

For first generation leafminer control, make first application as soon as petal-fall is complete. Greatest leafminer control will result from the earliest possible application. For second and succeeding generations of leafminer, optimal control is obtained from applications made early in the adult flight against egg and early instar larvae. A second application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. MERIT 75 WSP will not control late stage larvae.

For San Jose Scale, time applications to the crawler stage. Treat each generation.

For late season (preharvest) control of leafhopper species, apply MERIT 75 WSP while most leafhoppers are in the nymphal stage.

For optimal control of mealybug, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the mealybug.

Do not apply more than 2.1 ounces per acre in a single application. Do not make more than 5 applications.

Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.

*Not for use in California for control on pears.

Pecan*	Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	1.6 oz (1 packet) per 300 gal of water)	2.1 oz per acre[1]

Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14 day interval may be required to achieve control. Scout and retreat if needed.

Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's recommended use rate may improve coverage.

Do not apply more than a total of 6.3 ounces of MERIT 75 WSP per acre per year. Do not make more than 3 applications.

Allow 10 or more days between applications.

[1] The amount of MERIT 75 WSP required per acre will depend on tree size and volume of foliage present. The rate per acre is based on a standard of 400 gallons of dilute spray solution per acre for large trees.

*Use on pecans not permitted in California unless directed by specific supplemental labeling.

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas

CROP	PEST	RATE PER APPLICATION	
Grapes	Leafhoppers (including glassy-winged sharpshooter) Mealybugs	1.6 oz (1 packet) per 300 gal of water	1.0 oz per acre

Apply specified dosage as a foliar spray using 200 gallons of water per acre. Do not apply more than a total of 2.0 ounces of MERIT 75 WSP per acre per year. Allow at least 14 days between applications. Applications may be applied up to and including day of harvest.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. If container is leaking or material spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. You may contact the Bayer Emergency Response Team for decontamination procedures or any other assistance that may be necessary. The Bayer Kansas City Emergency Response telephone number is 800-414-0244 or contact Chemtrec at 800-424-9300.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Completely empty container into application equipment. Then dispose of empty container in a sanitary landfill, by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

B - 9571b 6/12/01

Bayer Corporation
Professional Care
Box 4913
Kansas City, MO 64120-0013
(800) 842-8020
http://bayerprocentral.com
ME 0205 BPC Printed in U.S.A.

IMPORTANT

Before using this product, read and carefully observe the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

Bayer Environmental Science

January 14, 2003

Dear Mr. Kirbach,

This letter is to confirm the status of the following labels, Merit 2 Insecticide (3125-418), Merit 75 WSP Insecticide (3125-439) and Merit 75 WP Insecticide (3125-421). These three Merit labels have a 2(ee) recommendation for the state of Illinois, Attached are copies of the most current and up-to-date labels for the state of Illinois.

Bayer Environmental Science
95 Chestnut Ridge Road
Montvale, NJ 07645
Phone : 201.307.9700

If you have any other questions or concerns please feel free to contact me either by e-mail or phone (Liane.Stocky@BayerCropscience.com or 201-307-3445).

Sincerely,

Liane Stocky
Registration Specialist

Product Bulletin

FOR DISTRIBUTION AND USE ONLY IN ILLINOIS
ONLY FOR USE UNDER THE DIRECTION OF USDA

Merit® 2

Insecticide

EPA Reg. No. 3125-418

FIFRA Section 2(ee) Recommendation: Recommends the use of MERIT 2 for the preventive control of Asian Longhorned Beetle. This recommendation is made as permitted under FIFRA Section 2(ee) and has not been submitted to or accepted by the U.S. Environmental Protection Agency.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product inconsistent with its labeling.

This bulletin must be in the possession of the user at time of pesticide application.

CROP	PEST	DOSAGE MERIT 2
Trees	Asian Longhorned Beetle	0.1 to 0.2 fl oz (3 to 6 mL) per inch of trunk diameter (D.B.H.)

Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 sq ft as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

ILMEPB02_006 03/26/02

Bayer Professional Care
Box 4913
Kansas City, MO 64120-0013
(800) 842-6020
http://bayerprocentral.com

IMPORTANT
Before using this product, read and carefully observe the directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

Product Bulletin

FOR DISTRIBUTION AND USE ONLY IN ILLINOIS
ONLY FOR USE UNDER THE DIRECTION OF USDA

Merit® 75 WP

Insecticide

EPA Reg. No. 3125-421

FIFRA Section 2(ee) Recommendation: Recommends the use of MERIT 75 WP for the preventive control of Asian Longhorned Beetle. This recommendation is made as permitted under FIFRA Section 2(ee) and has not been submitted to or accepted by the U.S. Environmental Protection Agency.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product inconsistent with its labeling.

This bulletin must be in the possession of the user at time of pesticide application.

CROP	PEST	DOSAGE MERIT 75 WP
Trees	Asian Longhorned Beetle	0.7 to 1.4 level teaspoons per inch of trunk diameter (D.B.H.) or 1 to 2 ounces per 30 cumulative inches of trunk diameter (D.B.H.)
Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 centers, in a grid pattern, extending to the drip line of the tree. **CIRCLE SYSTEM:** Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. **BASAL SYSTEM:** Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree. **Soil Drench:** Uniformly apply the dosage in no less than 10 gallons of water per 1000 sq ft as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.		
NOTE: 1 level teaspoon = 1.4 grams MERIT 75 WP and 3 level teaspoons = 1 level Tablespoon		

ILMEPB99_040 10/25/99

Bayer Corporation
Crop Protection Products
Box 4913
Kansas City, MO 64120-0013
(800) 842-5020
http://usagri.bayer.com

IMPORTANT
Before using this product, read and carefully observe directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

Product Bulletin

FOR DISTRIBUTION AND USE ONLY IN ILLINOIS
ONLY FOR USE UNDER THE DIRECTION OF USDA

Merit® 75 WSP

Insecticide

EPA Reg. No. 3125-439

FIFRA Section 2(ee) Recommendation: Recommends the use of MERIT 75 WSP for the preventive control of Asian Longhorned Beetle. This recommendation is made as permitted under FIFRA Section 2(ee) and has not been submitted to or accepted by the U.S. Environmental Protection Agency.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product inconsistent with its labeling.

This bulletin must be in the possession of the user at time of pesticide application.

CROP	PEST	DOSAGE MERIT 75 WSP
Trees	Asian Longhorned Beetle	1.6 oz (1 packet) per 24 to 48 inches of cumulative trunk diameter

Soil Injection: GRID SYSTEM: Holes should be spaced on 2.5 centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 8 to 12 inches out from the base.

Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.

Soil Drench: Uniformly apply the dosage in no less than 10 gallons of water per 1000 sq ft as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.

ILMEPB99_041 10/25/99

Bayer Corporation
Crop Protection Products
Box 4913
Kansas City, MO 64120-0013
(800) 842-8028
http://usagri.bayer.com

IMPORTANT
Before using this product, read and carefully observe directions, cautionary statements and other information appearing on the product packaging label. This product is sold subject to the Conditions of Sale set forth on the container label.

Bayer

J. J. MAUGET CO.

Mauget REG. T.M.

MATERIAL SAFETY DATA SHEET

J. J. MAUGET COMPANY
5435 PECK ROAD
ARCADIA, CA. 91006-5847

In Case of Emergency, Call
(626) 444-1057

I. MATERIAL IDENTIFICATION

Product Name: **IMICIDE™** EPA Registrtion No.:7946-16

Active Ingredient (% w/w):

Imidacloprid Technical	(10.0%)	CAS NO. 138261-41-3

Chemical Name: Bay NTN 33893
Chemical Class: Insecticide
EPA Signal Word: Caution

II. HAZARDOUS INGREDIENTS

Material	OSHA PEL	ACGIH TLV	% Ingredients
Imidacloprid	N/A	N/A	10.0%
Inert Ingredients: (non-hazardous)		N/A	N/A

III. FIRST AID PROCEDURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger, or if available, by administering syrup of ipecac. If person is unconscious, do not give anything by mouth and do not induce vomiting.

Eye Contact: Flush eyes with plenty of water. Call a physician if irritation persists.

Skin Contact: Wash with plenty of soap and water. Get medical attention if irritation persists.

Inhalation: Remove victim to fresh air. Give artificial respiration if no beathing. Get medical attention.

IV. HEALTH HAZARD INFORMATION

Symptoms of Exposure: Skin and eye contact are the most likely routes of exposure. Causes eye irritation. Slightly irritating to skin.

Routes of Entry:

Inhalation:	Yes
Skin:	Yes
Ingestion:	Yes

Carcinogenicity:

NTP:	Not Listed
IARC:	Not Listed
OSHA:	Not Listed

V. PHYSICAL HAZARD INFORMATION

Physical Properties

Boiling Point:	352°, 178° C
Specific Gravity:	Density = 1.05
Vapor Pressure:	0.2 mm Hg @ 20° C, 68° F
Vapor Density:	2.7 (air = 1)
Melting Point:	N/A
Evaporation Rate:	Slow (<.01)
Solubility in Water:	Limited
Appearance:	Capsule filled with amber liquid
Odor:	Woody fragrance

Fire and Explosion

Flash Point:	188° F, 87° C Tag closed cup
Flammability Limits:	UEL: 1.5% LEL: 9.7%

Reactivity

Stability:	Stable under normal storage conditions.
Hazardous Decomposition:	Combustion produces carbon monoxide, carbon dioxide and sulfur oxides.
Hazardous Polymerization:	Will Not Occur.
Conditions to Avoid:	Heat, sparks and open flame.
Incompatibility:	Avoid oxidizers.

VI. ENVIRONMENTAL PROTECTION

Waste Disposal Method: Observe all federal, state and local laws concerning health and environment.

In case of Fire: Use water spray, dry chemical, alcohol foam, or carbon dioxide extinguishing media. For special fire fighting procedures: use self-contained breathing apparatus and full protective clothing. Use water spray to cool nearby containers and structures exposed to fire. If water is used as an extinguishing media, the contaminated area must be diked to keep the contaminated water out of all water supplies. Observe all government regulations on spill reporting, and handling and disposal of waste.

Unusual Fire and Explosion Hazards: None

VII. PERSONAL PROTECTION AND PRECAUTIONS

Respiratory: Not normally needed.

Eye: Wear protective eyewear.

Ventilation: Adequate ventilation should be available.

Other Protective Devices and Procedures: Wear chemical resistant gloves, such as polyethylene or butyl rubber or neoprene rubber or viton.

VIII. CALIFORNIA ADDENDUM (PROPOSITION 65) SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986

The following specific warnings are hereby given relative to substances that the State of California has identified as carcinogens and/or reproductive hazards under Proposition 65:

☐ **WARNING:** This product contains a chemical known to the State of California to cause cancer.

☐ **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

IX. SARA TITLE III HAZARD CATEGORY:
For Reporting Under Section 311 & 312

Components present in this product that require reporting under the statute are: None

Issued Date: 6/26/96

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied, is made with respect to the information contained herein.

Bayer

MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
AGRICULTURE DIVISION
P.O. Box 4913 Hawthorn Road
Kansas City, MO 64120-0013

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
DISTRICT OF COLUMBIA: (202) 483-7616

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (816) 242-2582
BAYER INFORMATION PHONE.: (816) 242-2000

I. PRODUCT IDENTIFICATION:

PRODUCT NAME.....: MERIT 2 Insecticide
PRODUCT CODE.....: 21653
EPA REGISTRATION NO.: 3125-418
CHEMICAL FAMILY.....: Chloronicotinyl
CHEMICAL NAME.....: 1-{(6-chloro-3-pyridinyl)methyl}-N-nitro-
2-imidazolidinimine
SYNONYMS.....: Imidacloprid; BAY NTN 33893
FORMULA.....: C9 H10 Cl N5 O2
PRODUCT USE.....: Commercial Insecticide

II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
Imidacloprid 138261-41-3	OSHA : Not Established ACGIH: Not Established	22 %
Ingredient 1979 Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	1-3 %
Ingredient 2035 Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	1-3 %

III. PHYSICAL PROPERTIES:

PHYSICAL FORM.....: Viscous Liquid; Suspension
COLOR.....: Off-white to tan

III. PHYSICAL PROPERTIES (Continued)

ODOR.....: Mild, non-offensive
ODOR THRESHOLD.....: Not established
MOLECULAR WEIGHT.....: 255.7 (for imidacloprid)
pH .....: 7.5
BOILING POINT.....: Not established
MELTING/FREEZING POINT....: Freezing: 20 F
VISCOSITY.....: 350-500 cps @ 25 C
SOLUBILITY IN WATER .....: 75% of mixture
SPECIFIC GRAVITY .....: 1.12
BULK DENSITY.....: Not applicable
% VOLATILE BY VOLUME.....: Not established
VAPOR PRESSURE .....: 1.5 x 10 -9 mm @ 20 C (for imidacloprid)
VAPOR DENSITY .....: Not established (Air = 1)

IV. FIRE AND EXPLOSION DATA:

FLASH POINT.....: Greater than 200 F (93 C)
FLAMMABLE LIMITS:
  UPPER EXPLOSIVE LIMIT (UEL)(%): Not Applicable
  LOWER EXPLOSIVE LIMIT (LEL)(%): Not Applicable
EXTINGUISHING MEDIA.....: Water; Carbon Dioxide; Dry Chemical; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Keep out of smoke, cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain run-off by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

V. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Skin Absorption

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE.....: No specific symptoms of acute overexposure are known to occur in humans. Animal studies have shown that this material is mildly toxic by the oral and dermal routes. It is minimally irritating to the conjunctiva of the eye but the irritation is reversible within 72 hours. It is not a dermal irritant or a dermal sensitizer.
CHRONIC EFFECTS OF EXPOSURE...: No specific symptoms of chronic overexposure are known to occur in humans.

CARCINOGENICITY.....: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS
  AGGRAVATED BY EXPOSURE.....: No specific medical conditions are known which

V. HUMAN HEALTH DATA (Continued)

may be aggravated by exposure to this product.

VI. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES.....: Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation persists or develops after flushing.

FIRST AID FOR SKIN.....: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. If signs of intoxication (poisoning) occur, get medical attention immediately.

FIRST AID FOR INHALATION: First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.

FIRST AID FOR INGESTION.: If ingestion is suspected, call a physician or poison control center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or, if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN.....: Treat symptomatically. In case of poisoning, it is also requested that Bayer Corp., Agriculture Division, Kansas City, Missouri, be notified. Telephone: 816/242-2582

ANTIDOTES.....: None

VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS.....: Splash-proof goggles should be used to prevent liquid splashes from getting into the eyes.

SKIN PROTECTION REQUIREMENTS.....: Wear long sleeves and trousers to prevent skin contact.

HAND PROTECTION REQUIREMENTS.....: The use of chemical-resistant gloves to prevent skin contact is recommended as good practice.

RESPIRATOR REQUIREMENTS.....: Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to this product is excessive, wear a NIOSH-approved respirator for dusts and mists or for pesticides.

VENTILATION REQUIREMENTS.....: Control exposure levels through the use of general and local exhaust ventilation where needed.

ADDITIONAL PROTECTIVE MEASURES.....: Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

VIII. REACTIVITY DATA:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: None known
INSTABILITY CONDITIONS.....: Strong exothermal reaction above 200 C (imidacloprid)
DECOMPOSITION PRODUCTS.....: Proposed: HCl, HCN, CO, NOx (for imidacloprid)

IX. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES....: Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing vapors and skin contact. Remove sources of ignition if combustible or flammable vapors may be present and ventilate area. Wear proper protective equipment. Dike contaminated area with absorbent granules, soil, sand, etc. If large spill, material should be recovered. Small spills can be absorbed with absorbent granules, spill control pads, or any absorbent material. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways or contact vegetation.
WASTE DISPOSAL METHOD.....: Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

X. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE(MIN/MAX): None/30 day average not to exceed 100 F.
SHELF LIFE.....: Not Noted
SPECIAL SENSITIVITY.....: Not Noted
HANDLING/STORAGE PRECAUTIONS: Store in a cool dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

XI. SHIPPING INFORMATION:

TECHNICAL SHIPPING NAME.....: Imidacloprid
FREIGHT CLASS BULK.....: Insecticides, NOI-NMFC 102120
FREIGHT CLASS PACKAGE.....: Insecticides, NOI-NMFC 102120
PRODUCT LABEL.....: Not Noted

DOT (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: Not hazardous or regulated
HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER...: Non-Regulated

XII. ANIMAL TOXICITY DATA:

Only acute studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, Imidacloprid.

ACUTE TOXICITY

ORAL LD50.....: Male Rat: >4870 mg/kg; Female Rat: 4143 mg/kg

DERMAL LD50.....: Male & Female Rabbit: >2000 mg/kg

INHALATION LC50....: 4 Hr. Exposure to Liquid Aerosol: Male and Female Rat: >5.33 mg/l (analytical) -- 1Hr. Exposure to Liquid Aerosol (extrapolated from 4 Hr. LC50): Male and Female Rat: >20 mg/l (analytical)

EYE EFFECTS.....: Rabbit: Only minimal irritation to the conjunctiva was observed with all irritation resolving within 72 hours.

SKIN EFFECTS.....: Rabbit: Not a dermal irritant.

SENSITIZATION.....: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY...: In a 3 week dermal toxicity study, rabbits were treated with the active ingredient, imidacloprid, at the limit dose level of 1000 mg/kg for 6 hours/day, 5 days/week. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg/kg. In a 4 week inhalation study, rats were exposed to dust concentrations of imidacloprid at 5.5, 30.5 and 191.2 mg/cubic meter for 6 hours/day, 5 days/week. Effects observed at the high concentration included decreased body weight gains, decreased heart and thymus weights, increased

liver weights, and induction of the hepatic mixed-function oxidases. Histopathological examinations did not reveal any organ damage or local injury to the respiratory tract. The NOEL was 5.5 mg/cubic meter based on induction of the hepatic mixed-function oxidases.

CHRONIC TOXICITY.....: Dogs were administered imidacloprid for 1 year at dietary concentrations of 200, 500 or 1250 ppm. Due to the lack of significant effects, the high dose was increased to 2500 ppm at 17 weeks for the remainder of the study. Effects at the high dose included decreased food consumption, increased liver weights and elevated serum chemistries. The NOEL was 500 ppm. In chronic studies using rats, imidacloprid was administered for 2 years to rats at dietary concentrations of 100, 300, 900 or 1800 ppm. Histopathology examinations revealed an increased incidence of mineralization in the colloid of the thyroid follicles at concentrations of 300 ppm and greater. At 1800 ppm, there were changes in the serum chemistries and a slight increase in the incidence of parafollicular hyperplasia seen in the thyroids. Body weight gains were reduced at 900 and 1800 ppm. The overall NOEL was 100 ppm.

CARCINOGENICITY.....: Imidacloprid was investigated for carcinogenicity in chronic feeding studies using mice and rats at maximum levels of 2000 and 1800 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

MUTAGENICITY.....: The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

DEVELOPMENTAL TOXICITY: In a teratology study using rats, imidacloprid was administered by oral gavage during gestation at doses of 10, 30 or 100 mg/kg. At the maternally toxic dose of 100 mg/kg, skeletal examinations of the fetuses revealed a slight increase in the incidence of wavy ribs. The NOELs for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested. Rabbits were administered imidacloprid during gestation at oral doses of 8, 24 or 72 mg/kg. At the maternally toxic dose of 72 mg/kg, reduced body weights and delayed skeletal ossification were observed in the fetuses. The NOELs for maternal and developmental toxicity were 8 and 24 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested.

REPRODUCTION.....: In a reproduction study, imidacloprid was administered to rats for 2 generations at dietary concentrations of 100, 250 or 700 ppm. Offspring at 700 ppm, exhibited reduced mean body weights and body weight gains. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

NEUROTOXICITY .....: In an acute oral neurotoxicity study using rats, imidacloprid was administered as a single dose at concentrations of 42, 151 or 307 mg/kg. Clinical observations and neurotoxicity evaluations were performed over a period of 15 days followed by a neurohistopathological examination. Deaths attributed to imidacloprid were observed at the high dose within a day of treatment. The NOEL for motor and locomotor activity was 42 mg/kg for males. Females at the low dose exhibited minimal decrease in activity in the figure-eight maze. In a subsequent study, the NOEL for motor and locomotor activity in females was 20 mg/kg. The NOEL for neurotoxicity was 307 mg/kg based on the absence of treatment-related microscopic lesions in skeletal muscle or neural tissue. In a 13 week neurotoxicity study, imidacloprid was

XII. ANIMAL TOXICITY DATA (Continued)

administered to rats at dietary concentrations of 140, 963 or 3027 ppm. At the mid-and high dose, effects observed included reductions in body weight and feed consumption, and clinical chemistry findings. Neurobehavorial changes were observed only in males at the high dose. There were no correlative micropathologic findings in muscle or neural tissues in any animals at any treatment level. The NOEL for neurotoxicity wa 3027 ppm. The overall NOEL was 140 ppm.

XIII. FEDERAL REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS.....: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

CERCLA REPORTABLE QUANTITY..: No components listed

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES..: None

SECTION 311/312 HAZARD CATEGORIES.....: Immediate Health Hazard

SECTION 313 TOXIC CHEMICALS.....: None

RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

XIV. OTHER REGULATORY INFORMATION:

NFPA 704M RATINGS:	Health	Flammability	Reactivity	Other
	1	1	1	0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer Corporation as a customer service.

XV. APPROVALS:

REASON FOR ISSUE.....: Add neurotoxicity data (Section XII)
PREPARED BY.....: V. C. Standart
APPROVED BY.....: D. C. Eberhart
TITLE.....: Product Safety Manager
APPROVAL DATE.....: 09/23/94
SUPERSEDES DATE.....: 07/14/94
MSDS NUMBER.....: 15960

Bayer

MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
AGRICULTURE DIVISION
P.O. Box 4913 Hawthorn Road
Kansas City, MO 64120-001

TRANSPORTATION EMERGENCY:
CALL CHEMTREC: (800) 424-9300
DISTRICT OF COLUMBIA: (202) 483-7616

NON-TRANSPORTATION:
BAYER EMERGENCY PHONE: (800) 414-0244
BAYER INFORMATION PHONE: (800) 842-8020

1. PRODUCT IDENTIFICATION:

PRODUCT NAME: MERIT 75 WP Insecticide
PRODUCT CODE: 216511
EPA REGISTRATION NO.: 3125-421
CHEMICAL FAMILY: Chloronicotinyl
CHEMICAL NAME: 1-[(6-chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine
SYNONYMS: Imidacloprid; BAY NTN 33893
FORMULA: C9 H10 Cl N5 02
PRODUCT USE: Commercial Insecticide

2. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
Imidacloprid		75 %
138261-41-3	OSHA : Not Established ACGIH: Not Established	
Ingredient 1968		3-5 %
Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	
Ingredient 1611		10-20 %
Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	

3. PHYSICAL PROPERTIES:

PHYSICAL FORM: Powder; Solid
COLOR: Light brown
ODOR: None
MOLECULAR WEIGHT: 255.7 (for imidacloprid)
pH: 1% Slurry pH 6-8
BOILING POINT: Not established
MELTING/FREEZING POINT: Melting: 120-134 °C (for imidacloprid)
SOLUBILITY IN WATER: 9-10% of the mixture
SOLUBILITY (NON AQUEOUS): Much of the mixture is soluble in acetone, methylene chloride and DMF.
SPECIFIC GRAVITY: Not established
BULK DENSITY: Tapped bulk density is approximately 30 lbs/cu-ft
% VOLATILE BY VOLUME: Not applicable
% VOLATILE BY WEIGHT: Not applicable
EVAPORATION RATE: Not established (Butyl acetate = 1)
VAPOR PRESSURE: 1.5 x 10 -9 mm @ 20 °C (for imidacloprid)
VAPOR DENSITY: Not established (Air = 1)
NITROGEN CONTENT: Approximately 20%

4. FIRE AND EXPLOSION DATA:

FLASH POINT: Not Applicable
FLAMMABLE LIMITS:
UPPER EXPLOSIVE LIMIT (UEL)(%): Not Established
LOWER EXPLOSIVE LIMIT (LEL)(%): Not Established
EXTINGUISHING MEDIA: Water; Carbon Dioxide; Dry Chemical; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Keep out of smoke, cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain run-off by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

5. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY: Inhalation; Skin Contact; Skin Absorption
HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE: No specific symptoms of acute overexposure are known to occur in humans. Animal studies have shown that this material is mildly toxic by the oral and dermal routes. It is minimally irritating to the conjunctiva of the eye but the irritation is reversible within 24 hours. It is a slight dermal irritant, but is not a dermal sensitizer.
CHRONIC EFFECTS OF EXPOSURE: No specific symptoms of chronic overexposure are known to occur in humans.
CARCINOGENICITY: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: No specific medical conditions are known which may be aggravated by exposure to this product.

6. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES: Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation persists or develops after flushing.
FIRST AID FOR SKIN: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. If signs of intoxication (poisoning) occur, get medical attention immediately.
FIRST AID FOR INHALATION: First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.
FIRST AID FOR INGESTION: If ingestion is suspected, call a physician or poison control center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or, if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or given anything by mouth to an unconscious person.
NOTE TO PHYSICIAN: Treat symptomatically. In case of poisoning, it is also requested that Bayer Corp., Agriculture Division, Kansas City, Missouri, be notified. Telephone: 816/242-2582
ANTIDOTES: None

7. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS: Goggles should be used when needed to prevent dust from getting into the eyes.

SKIN PROTECTION REQUIREMENTS: Wear long sleeves and trousers to prevent skin contact.

HAND PROTECTION REQUIREMENTS: The use of chemical-resistant gloves to prevent skin contact is recommended as good practice.

RESPIRATOR REQUIREMENTS: Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to product dust is excessive, wear a NIOSH-approved respirator for dusts and mists or for pesticides.

VENTILATION REQUIREMENTS: Control exposure levels through the use of general and local exhaust ventilation where needed.

ADDITIONAL PROTECTIVE MEASURES: Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

8. REACTIVITY DATA:

STABILITY: This is a stable material.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITIES: None known

INSTABILITY CONDITIONS: Strong exothermal reaction above 200 °C (for imidacloprid)

DECOMPOSITION PRODUCTS: Proposed: HCl, HCN, CO, NOx (for imidacloprid)

9. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES: Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing dusts and skin contact. Avoid generating dust (a fine water spray mist, plastic film cover, or floor sweeping compound may be used if necessary). Use recommended protective equipment while carefully sweeping up spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

WASTE DISPOSAL METHOD: Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

10. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE(MIN/MAX): None/30 day average not to exceed 100 °F

SHELF LIFE: Not noted

SPECIAL SENSITIVITY: Not noted

HANDLING/STORAGE PRECAUTIONS: Store in a cool dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

11. SHIPPING INFORMATION:

TECHNICAL SHIPPING NAME:	Imidacloprid
FREIGHT CLASS BULK:	Insecticides, NOI-NMFC 102120
FREIGHT CLASS PACKAGE:	Insecticides, NOI-NMFC 102120
PRODUCT LABEL:	Not Noted

DOT (DOMESTIC SURFACE):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS OR DIVISION:	Non-Regulated

IMO / IMDG CODE (OCEAN):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER:	Non-Regulated

ICAO / IATA (AIR):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER:	Non-Regulated

12. ANIMAL TOXICITY DATA:

Only acute studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, Imidacloprid.

ACUTE TOXICITY:

ORAL LD50: Male Rat: 2591 mg/kg; Female Rat: 1858 mg/kg

DERMAL LD50: Male and Female Rat: >2000 mg/kg

INHALATION LC50: 4 Hr. Exposure to Liquid Aerosol: Male Rat: 2.65 mg/l (analytical); Female Rat: 2.75 mg/l (analytical) -- 1 Hr. Exposure to Liquid Aerosol (extrapolated from 4 Hr. LC50): Male Rat: 10.6 mg/l (analytical); Female Rat: 11.0 mg/l (analytical)

EYE EFFECTS: Rabbit: Only minimal irritation to the conjunctiva was observed with all remarkable irritation resolving by 24 hours.

SKIN EFFECTS: Rabbit: Slight dermal irritant.

SENSITIZATION: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY:

In a 3 week dermal toxicity study, rabbits were treated with the active ingredient, imidacloprid, at the limit dose level of 1000 mg/kg for 6 hours/day, 5 days/week. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg/kg. In a 4 week inhalation study, rats were exposed to dust concentrations of imidacloprid at 5.5, 30.5 and 191.2 mg/cubic meter for 6 hours/day, 5 days/week. Effects observed at the high concentration included decreased body weight gains, decreased heart and thymus weights, increased liver weights, and induction of the hepatic mixed-function oxidases. Histopathological examinations did not reveal any organ damage or local injury to the respiratory tract. The NOEL was 5.5 mg/cubic meter based on induction of the hepatic mixed-function oxidases.

CHRONIC TOXICITY:

Dogs were administered imidacloprid for 1 year at dietary concentrations of 200, 500 or 1250 ppm. Due to the lack of significant effects, the high dose was increased to 2500 ppm at 17 weeks for the remainder of the study. Effects observed at the high dose included decreased food consumption, increased liver weights and elevated serum chemistries. The NOEL was 500 ppm. In chronic studies using rats, imidacloprid was administered for 2 years to rats at dietary concentrations of 100, 300, 900 or 1800 ppm. Histopathology examinations revealed an increased incidence of mineralization in the colloid of the thyroid follicles at concentrations of 300 ppm and greater. At 1800 ppm, there were changes in the serum chemistries and a slight increase in the incidence of parafollicular hyperplasia seen in the thyroids. Body weight gains were reduced at 900 and 1800 ppm. The overall NOEL was 100 ppm.

ANIMAL TOXICITY DATA continued:

CARCINOGENICITY:

Imidacloprid was investigated for carcinogenicity in chronic feeding studies using mice and rats at maximum levels of 2000 and 1800 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

MUTAGENICITY:

The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

DEVELOPMENTAL TOXICITY:

In a teratology study using rats, imidacloprid was administered by oral gavage during gestation at doses of 10, 30 or 100 mg/kg. At the maternally toxic dose of 100 mg/kg, skeletal examinations of the fetuses revealed a slight increase in the incidence of wavy ribs. The NOELs for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested. Rabbits were administered imidacloprid during gestation at oral doses of 8, 24 or 72 mg/kg. At the maternally toxic dose of 72 mg/kg, reduced body weights and delayed skeletal ossification were observed in the fetuses. The NOELs for maternal and developmental toxicity were 8 and 24 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested.

REPRODUCTION:

In a reproduction study, imidacloprid was administered to rats for 2 generations at dietary concentrations of 100, 250 or 700 ppm. Offspring at 700 ppm, exhibited reduced mean body weights and body weight gain. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

NEUROTOXICITY:

In an acute oral neurotoxicity study using rats, imidacloprid was administered as a single dose at concentrations of 42, 151 or 307 mg/kg. Clinical observations and neurotoxicity evaluations were performed over a period of 15 days followed by a neurohistopathological examination. Deaths attributed to imidacloprid were observed at the high dose within a day of treatment. The NOEL for motor and locomotor activity was 42 mg/kg for males. Females at the low dose exhibited minimal decrease in activity in the figure-eight maze. In a subsequent study, the NOEL for motor and locomotor activity in females was 20 mg/kg. The NOEL for neurotoxicity was 307 mg/kg based on the absence of treatment-related microscopic lesions in skeletal muscle or neural tissue. In a 13 week neurotoxicity study, imidacloprid was administered to rats at dietary concentrations of 140, 963 or 3027 ppm. At the mid-and high dose, effects observed included reductions in body weight and feed consumption, and clinical chemistry findings. Neurobehavorial changes were observed only in males at the high dose. There were no correlative micropathologic findings in muscle or neural tissues in any animals at any treatment level. The NOEL for neurotoxicity was 3027 ppm. The overall NOEL was 140 ppm.

13. FEDERAL REGULATORY INFORMATION:

OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

CERCLA REPORTABLE QUANTITY: No components listed

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: None

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard

SECTION 313 TOXIC CHEMICALS: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

14. OTHER REGULATORY INFORMATION:

NFPA 704M RATINGS:

Health: 1	Flammability: 1	Reactivity: 1	Other:
0=Insignificant	1=Slight	2=Moderate	3=High	4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer Corporation as a customer service.

15. APPROVALS:

REASON FOR ISSUE:	Add neurotoxicity data (Section XII)
PREPARED BY:	V. C. Standart
APPROVED BY:	D. C. Eberhart
TITLE:	Product Safety Manager
APPROVAL DATE:	09/23/94
SUPERSEDES DATE:	07/20/94
MSDS NUMBER:	15961

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Bayer

MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
AGRICULTURE DIVISION
P.O. Box 4913 Hawthorn Road
Kansas City, MO 64120-001

TRANSPORTATION EMERGENCY:
CALL CHEMTREC: (800) 424-9300
DISTRICT OF COLUMBIA: (202) 483-7616

NON-TRANSPORTATION:
BAYER EMERGENCY PHONE: (800) 414-0244
BAYER INFORMATION PHONE: (800) 842-8020

1. PRODUCT IDENTIFICATION:

PRODUCT NAME: MERIT 75 WSP Insecticide
PRODUCT CODE: 216512
EPA REGISTRATION NO.: 3125-439
CHEMICAL FAMILY: Chloronicotinyl
CHEMICAL NAME: 1-[(6-chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine
SYNONYMS: Imidacloprid; BAY NTN 33893
FORMULA: C9 H10 Cl N5 02
PRODUCT USE: Commercial Insecticide

2. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
Imidacloprid		75 %
138261-41-3	OSHA : Not Established ACGIH: Not Established	
Ingredient 1968		1-5 %
Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	
Ingredient 1611		10-20 %
Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	

3. PHYSICAL PROPERTIES:

PHYSICAL FORM: Powder; Solid
COLOR: Light brown
ODOR: None
MOLECULAR WEIGHT: 255.7 (for imidacloprid)
pH: 1% Slurry pH 6-8
BOILING POINT: Not established
MELTING/FREEZING POINT: Melting: 120-134 °C (for imidacloprid)
SOLUBILITY IN WATER: 9-10% of the mixture
SOLUBILITY (NON AQUEOUS): Much of the mixture is soluble in acetone, methylene chloride and DMF.
SPECIFIC GRAVITY: Not established
BULK DENSITY: Tapped bulk density is approximately 30 lbs/cu-ft
% VOLATILE BY VOLUME: Not applicable
% VOLATILE BY WEIGHT: Not applicable
EVAPORATION RATE: Not established (Butyl acetate = 1)
VAPOR PRESSURE: 1.5 x 10 -9 mm @ 20 °C (for imidacloprid)
VAPOR DENSITY: Not established (Air = 1)
NITROGEN CONTENT: Approximately 20%

4. FIRE AND EXPLOSION DATA:

FLASH POINT: Not Applicable
EXTINGUISHING MEDIA: Water; Carbon Dioxide; Dry Chemical; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Keep out of smoke, cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain run-off by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

5. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY: Inhalation; Skin Contact; Skin Absorption
HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE: No specific symptoms of acute overexposure are known to occur in humans. Animal studies have shown that this material is mildly toxic by the oral and dermal routes. It is minimally irritating to the conjunctiva of the eye but the irritation is reversible within 24 hours. It is a slight dermal irritant, but is not a dermal sensitizer.
CHRONIC EFFECTS OF EXPOSURE: No specific symptoms of chronic overexposure are known to occur in humans.
CARCINOGENICITY: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: No specific medical conditions are known which may be aggravated by exposure to this product.

6. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES: Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation persists or develops after flushing.
FIRST AID FOR SKIN: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. If signs of intoxication (poisoning) occur, get medical attention immediately.
FIRST AID FOR INHALATION: First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.
FIRST AID FOR INGESTION: If ingestion is suspected, call a physician or poison control center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or, if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person.
NOTE TO PHYSICIAN: Treat symptomatically. In case of poisoning, it is also requested that Bayer Corp., Agriculture Division, Kansas City, Missouri, be notified. Telephone: 816/242-2582
ANTIDOTES: None

7. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS: Goggles should be used when needed to prevent dust from getting into the eyes.

SKIN PROTECTION REQUIREMENTS: Wear long sleeves and trousers to prevent skin contact.

HAND PROTECTION REQUIREMENTS: The use of chemical-resistant gloves to prevent skin contact is recommended as good practice.

RESPIRATOR REQUIREMENTS: Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to product dust is excessive, wear a NIOSH-approved respirator for dusts and mists or for pesticides.

VENTILATION REQUIREMENTS: Control exposure levels through the use of general and local exhaust ventilation where needed.

ADDITIONAL PROTECTIVE MEASURES: Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

8. REACTIVITY DATA:

STABILITY: This is a stable material.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITIES: None known

INSTABILITY CONDITIONS: Strong exothermal reaction above 200°C (for imidacloprid)

DECOMPOSITION PRODUCTS: Proposed: HCl, HCN, CO, NOx (for imidacloprid)

9. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES: Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing dusts and skin contact. Avoid generating dust (a fine water spray mist, plastic film cover, or floor sweeping compound may be used if necessary). Use recommended protective equipment while carefully sweeping up spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

WASTE DISPOSAL METHOD: Follow container label instructions for disposal of wastes generated during use in compliance with the product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

10. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE(MIN/MAX): None/30 day average not to exceed 100 °F

SHELF LIFE: Not noted

SPECIAL SENSITIVITY: Not noted

HANDLING/STORAGE PRECAUTIONS: Store in a cool dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

11. SHIPPING INFORMATION:

TECHNICAL SHIPPING NAME:	Imidacloprid
FREIGHT CLASS BULK:	Insecticides, NOI-NMFC 102120
FREIGHT CLASS PACKAGE:	Insecticides, NOI-NMFC 102120
PRODUCT LABEL:	Not Noted

DOT (DOMESTIC SURFACE):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS OR DIVISION:	Non-Regulated

IMO / IMDG CODE (OCEAN):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER:	Non-Regulated

ICAO / IATA (AIR):

PROPER SHIPPING NAME:	Not hazardous or regulated
HAZARD CLASS DIVISION NUMBER:	Non-Regulated

12. ANIMAL TOXICITY DATA:

Only acute studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, Imidacloprid.

ACUTE TOXICITY:

ORAL LD50: Male Rat: 2591 mg/kg; Female Rat: 1858 mg/kg

DERMAL LD50: Male and Female Rat: >2000 mg/kg

INHALATION LC50: 4 Hr. Exposure to Liquid Aerosol: Male Rat: 2.65 mg/l (analytical); Female Rat: 2.75 mg/l (analytical) -- 1 Hr. Exposure to Liquid Aerosol (extrapolated from 4 Hr. LC50): Male Rat: 10.6 mg/l (analytical); Female Rat: 11.0 mg/l (analytical)

EYE EFFECTS: Rabbit: Only minimal irritation to the conjunctiva was observed with all remarkable irritation resolving by 24 hours.

SKIN EFFECTS: Rabbit: Slight dermal irritant.

SENSITIZATION: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY:

In a 3 week dermal toxicity study, rabbits were treated with the active ingredient, imidacloprid, at the limit dose level of 1000 mg/kg for 6 hours/day, 5 days/week. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg/kg. In a 4 week inhalation study, rats were exposed to dust concentrations of imidacloprid at 5.5, 30.5 and 191.2 mg/cubic meter for 6 hours/day, 5 days/week. Effects observed at the high concentration included decreased body weight gains, decreased heart and thymus weights, increased liver weights, and induction of the hepatic mixed-function oxidases. Histopathological examinations did not reveal any organ damage or local injury to the respiratory tract. The NOEL was 5.5 mg/cubic meter based on induction of the hepatic mixed-function oxidases.

CHRONIC TOXICITY:

Dogs were administered imidacloprid for 1 year at dietary concentrations of 200, 500 or 1250 ppm. Due to the lack of significant effects, the high dose was increased to 2500 ppm at 17 weeks for the remainder of the study. Effects observed at the high dose included decreased food consumption, increased liver weights and elevated serum chemistries. The NOEL was 500 ppm. In chronic studies using rats, imidacloprid was administered for 2 years to rats at dietary concentrations of 100, 300, 900 or 1800 ppm. Histopathology examinations revealed an increased incidence of mineralization in the colloid of the thyroid follicles at concentrations of 300 ppm and greater. At 1800 ppm, there were changes in the serum chemistries and a slight increase in the incidence of parafollicular hyperplasia seen in the thyroids. Body weight gains were reduced at 900 and 1800 ppm. The overall NOEL was 100 ppm.

ANIMAL TOXICITY DATA continued:

CARCINOGENICITY:

Imidacloprid was investigated for carcinogenicity in chronic feeding studies using mice and rats at maximum levels of 2000 and 1800 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

MUTAGENICITY:

The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

DEVELOPMENTAL TOXICITY:

In a teratology study using rats, imidacloprid was administered by oral gavage during gestation at doses of 10, 30 or 100 mg/kg. At the maternally toxic dose of 100 mg/kg, skeletal examinations of the fetuses revealed a slight increase in the incidence of wavy ribs. The NOELs for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested. Rabbits were administered imidacloprid during gestation at oral doses of 8, 24 or 72 mg/kg. At the maternally toxic dose of 72 mg/kg, reduced body weights and delayed skeletal ossification were observed in the fetuses. The NOELs for maternal and developmental toxicity were 8 and 24 mg/kg, respectively. Teratogenic effects were not observed at any of the doses tested.

REPRODUCTION:

In a reproduction study, imidacloprid was administered to rats for 2 generations at dietary concentrations of 100, 250 or 700 ppm. Offspring at 700 ppm, exhibited reduced mean body weights and body weight gain. No other reproductive effects were observed. The maternal and reproductive NOELs were 100 and 250 ppm, respectively.

NEUROTOXICITY:

In an acute oral neurotoxicity study using rats, imidacloprid was administered as a single dose at concentrations of 42, 151 or 307 mg/kg. Clinical observations and neurotoxicity evaluations were performed over a period of 15 days followed by a neurohistopathological examination. Deaths attributed to imidacloprid were observed at the high dose within a day of treatment. The NOEL for motor and locomotor activity was 42 mg/kg for males. Females at the low dose exhibited minimal decrease in activity in the figure-eight maze. In a subsequent study, the NOEL for motor and locomotor activity in females was 20 mg/kg. The NOEL for neurotoxicity was 307 mg/kg based on the absence of treatment-related microscopic lesions in skeletal muscle or neural tissue. In a 13 week neurotoxicity study, imidacloprid was administered to rats at dietary concentrations of 140, 963 or 3027 ppm. At the mid- and high dose, effects observed included reductions in body weight and feed consumption, and clinical chemistry findings. Neurobehavioral changes were observed only in males at the high dose. There were no correlative micropathologic findings in muscle or neural tissues in any animals at any treatment level. The NOEL for neurotoxicity was 3027 ppm. The overall NOEL was 140 ppm.

13. FEDERAL REGULATORY INFORMATION:

OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

CERCLA REPORTABLE QUANTITY: No components listed

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: None

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard

SECTION 313 TOXIC CHEMICALS: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

14. OTHER REGULATORY INFORMATION:

NFPA 704M RATINGS:

Health: 1	Flammability: 1	Reactivity: 1	Other: 0
0=Insignificant	1=Slight	2=Moderate	3=High	4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer Corporation as a customer service.

15. APPROVALS:

REASON FOR ISSUE:	Add neurotoxicity data (Section XII)
PREPARED BY:	V. C. Standart
APPROVED BY:	D. C. Eberhart
TITLE:	Product Safety Manager
APPROVAL DATE:	10/03/94
SUPERSEDES DATE:	06/28/94
MSDS NUMBER:	19350

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